

Y2K Contingency Planning White Paper

The Year 2000 problem offers water and wastewater utilities some unique challenges in contingency planning, as well as the motivation and opportunity to revisit and revise old emergency preparedness strategies. It often takes an event like Y2K to remind people of the need for up-to-date risk management and emergency preparedness plans. Although this paper focuses specifically on contingency planning for the Y2K problem, since the Y2K problem affects almost all aspects of business, lessons learned can be applied to other emergency situations too. Therefore, contingency planning for Y2K will not only prepare utilities for critical Y2K dates, but for other emergencies as well.

This paper's purpose is to help water and wastewater utilities of varying sizes to identify the basic elements that must be addressed in a Y2K contingency plan, and how to properly address them. This is meant to be a resource and a general overview, but not an actual Y2K contingency plan.

I. Creating the Plan

There is often overlap between contingency plans for different emergencies, so previous contingency plans, or contingency plans from other organizations can be used as a starting point for designing a Y2K contingency plan. For example, a plan for an earthquake would probably contain contingencies for an electrical outage, which could be modified for use in a Y2K contingency plan.

The Y2K issue can affect every department in a utility, and can affect internal, as well as external elements of a utility's operations. Even utilities that have performed very thorough preparations of their systems should plan for the possibility that they overlooked some items. The following is a list of major events that should be covered by a Y2K contingency plan:

- Electrical component failure (due to Y2K)
- Electrical component failure (due to brownouts)
- Electrical power blackouts and brownouts
- Natural gas cut-off or shortage
- Water cut-off or shortage
- Telephone, cellular, and pager service disruptions
- Internet service disruptions
- Fuel shortages
- Chemical supply problems (quality or quantity)
- Bank problems
- Trucking or delivery service disruptions
- Other critical vendor problems

- Civil unrest
- Industrial discharger pre-treatment failures

With the wide array of systems affected by Y2K, input for a contingency plan should be solicited from all departments. In assessing the completeness and comprehensiveness of your plan, it can be useful to think of the utility's self-sufficiency for a period of time after the Y2K rollover. The utility should be able to operate as a self-sufficient unit, without needing to rely on any outside services or supplies, for as long as the contingency plan is in effect.

A number of factors should be considered when determining how long the contingency plan should last. Utility personnel should decide how long each critical system or vendor in their area of responsibility could be disrupted in a worst case scenario. The contingency planners should then strive to make the plan cover these time frames, although certain practicalities must be taken into account. For example, some chemicals have limited shelf lives, so it is impractical to stockpile more of the chemical than will be used by the end of its shelf life. Also, if a vendor cannot function for a number of days, another vendor may be available to take that vendor's place (although the fact that demand may outstrip the supply of functioning vendors after the Y2K rollover should be considered).

II. Internal Systems

Although removing the influence of external vendors is a large part of Y2K contingency planning, internal systems cannot be overlooked. Even if every piece of equipment has been certified as Y2K compliant, with a problem as complex and pervasive as Y2K there is always a chance that something could have been overlooked. Therefore, contingency plans should address the potential failure of every critical device and system in the water or wastewater facility. This may involve developing back-up systems, such as redundant equipment, or back-up plans for manual overrides of controls. It could also include decreasing repair/replace times for equipment. This could be especially important for Y2K, because of the potential for multiple, simultaneous system failures.

III. Energy

Energy is one of the most critical supplies to many water and wastewater operations, and is a central part of the Y2K contingency plan. Sewage lift stations often have very little reserve capacity when not pumping, so they may need a back-up energy supply immediately, in the event of a blackout. Although the impact of the Y2K rollover can vary greatly from place to place, many people are predicting rolling blackouts and brownouts for several days after the rollover. However, utilities should be prepared for the worst case of total blackouts throughout their district. Water and wastewater utilities should also be prepared for low voltage or phasing problems. The conditions associated with brownouts can cause overheating of equipment and in some cases destroy electric motors and electronic equipment. In order to protect themselves from brownouts, some utilities are planning on turning off non-critical equipment and disconnecting their plants completely from the power grid during the rollover. They will run on their own

generated power until they believe that the grid power supply has stabilized and there is no threat of brownouts.

The best contingency for power outages is to have enough uninterruptable power supplies (UPSs) and generators with automatic switches to provide power for all systems in the event of a total blackout. However, this can be very expensive, so it is not always practical. Trailer-mounted mobile generators can reduce costs by supplying power for several areas. For example, a mobile generator could be rotated around to several sewage lift stations, each one being pumped dry and left to fill up again while another is being pumped out. To speed up the process of hooking mobile generators up to equipment, “quick-connectors” can be installed. This type of connection allows generators to simply be plugged in and turned on, instead of having to take the power supply housing apart, tapping into existing wiring, etc. After a plan for the distribution and rotation of mobile generators in the event of a total blackout is drafted, you should conduct an emergency drill to ensure that it is realistic in its assumptions. Generators are already in high demand in preparation for Y2K, so any utilities that have not filled all of their back-up generation needs should do so as soon as possible since the supply is dwindling and generators can take a long time to build.

Some water/wastewater utilities have found that their older generators have not been used or maintained in such a long time that they no longer function. Therefore, it is important to run all generators regularly and keep them well-maintained. A generator that needs several hours or days of repair in a time of need is useless. Consider a schedule of monthly full-load tests for all generators to keep them ready.

Fuel required for generators, trucks transporting mobile generators, and vehicles needed by field crews can be high, so a fuel plan should be written into the overall Y2K contingency plan that fills all potential fuel needs for the length of the planned contingency period. Topping off all fuel tanks at the end of December is the most obvious way to prepare fuel capacity, but often times more is needed. Smaller utilities may want to rent a fuel tank to be put in a central location. Larger organizations may want to contract a tanker truck for the Y2K rollover. A tanker truck can deliver fuel to sites throughout the district, and can refuel when necessary, assuming that there are functioning fuel depots nearby.

In developing the energy section of the contingency plan, some utilities may need to develop plans for disruptions of other sources of power, such as natural gas, or utility-owned generation plants powered by methane gas from the wastewater treatment process. Even if the generation plants are certified as compliant, they are complex systems and something could have been overlooked. Therefore, contingencies for generation plant failure should be prepared.

IV. Other Services and Supplies

Many other vendors can play a critical part in a water or wastewater utility’s operations. All vendors should be assessed for their importance to the utility, and separate contingencies should be made for each vendor that is deemed to be critical. Most vendors will state that they are, or will be, Y2K compliant. However a contingency plan should be prepared for all vendors

regardless of their statements. Some consulting firms specialize in risk management and can help with contingency planning by assessing the possibility that a vendor will fail due to Y2K, the likelihood of failure, and the consequence of failure.

Some vendor contingency plans are as simple as stockpiling supplies so that there is no need to rely on a vendor for a number of days or weeks. Others are more complex. For example, if drinking water can be delivered, but cannot be treated because of a lack of chemicals or energy for the treatment process, a warning system must be developed to notify customers of the situation and educate them on how to treat their water.

V. Finance

To avoid problems caused by disruptions to financial systems or the systems of a bank or other finance partner, the financial department may want to move important transactions away from the Y2K rollover date, and the Leap Year. For critical transactions that cannot be moved, contingencies should be planned. For example, some utilities that have a payday in early January are planning to print checks for the payday in late December, and then disburse them on their regular date. Checks can also be preprinted for other expenses in late December, and then kept until they would normally be sent out. This at least gives the financial department some time to correct any disruptions. Smaller utilities may also want to work with common vendors, such as the local hardware store to arrange credit agreements that allow them to purchase items on credit while Y2K problems are being worked out.

VI. Other External Influences

Outside of vendors and business partners, there are other entities that influence water and wastewater utilities that must be considered. A concern of many utilities is that the public will have an irrational reaction to Y2K events, which will cause civil disturbances. Civil disturbances could include overwhelming phone calls in response to service disruptions, stolen generators, vandalism, or even rioting. Although the likelihood of these scenarios might seem remote, they should be factored into Y2K contingency plans. Utilities may want to procure extra security personnel and equipment for the beginning of the year 2000 to protect their staff and assets.

Another concern is that disruptions at a few large clients, such as sub-agencies and industrial dischargers can affect utility operations. In addition to preparing for sub-agency service disruptions or excess discharges in one's contingency plan, it would be useful to try and stem potential problems now by working with large clients to ensure their Y2K readiness.

VII. Staffing

One of the greatest concerns for New Year's Eve, New Year's Day, and to a lesser extent, Leap Year, is staffing. If any Y2K problems are encountered, staff will be needed to deal with them. Employees may not want to be at work on New Year's Eve, though, so motivating them to come to work or be on call can be difficult. Some utilities are planning on holding get-togethers at their headquarters on New Year's Eve so that they can have a large number of staff available in

case problems are encountered. Utilities should at least plan to have some key staff monitoring operations carefully for any signs of disruption or malfunction. In order to complete last minute Y2K preparations, and to have staff available to handle any Y2K problems after the rollover, many utilities are not allowing vacations from the last week in December through the first week in January.

In addition to having staff on hand, it can be helpful to have a standard organizational structure to make responses to emergency events more efficient. Emergency management training is available in most states. This training can include information on general emergency management structures that increase the efficiency of responses to emergency situations. They can also include more specific information about how different agencies in the state should interact during emergencies. In California, water/wastewater utilities that are certified for their Standardized Emergency Management System, get reimbursed for any costs incurred while responding to an emergency. Emergency management training can also help utilities set up incident command centers, so that managers can communicate with staff in the field and manage the situation from a central location. These incident command centers can be offices or conference rooms that can be easily converted in emergencies. They are often equipped with telephones, cellular phones, two-way radios, laptops, SCADA terminals, televisions, emergency plans, human resources data, coffee makers, and anything else that could assist in managing an emergency. Human resources data that can be helpful is a matrix of all staff and their skills and certifications, so managers know who to assign to what job in emergency situations.